

## PATENT ABSTRACTS OF JAPAN

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(71)Applicant : SONY CORP

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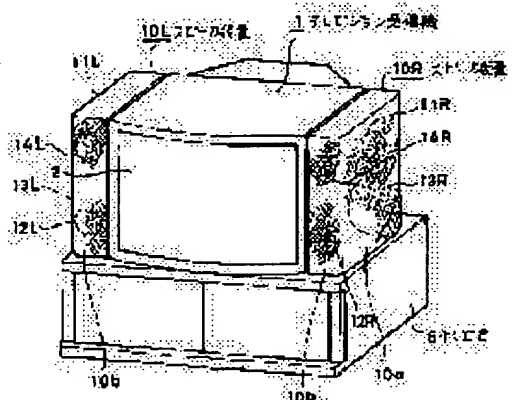
(72)Inventor : KOIZUMI HIROSHI

## (54) SPEAKER FOR TELEVISION RECEIVER

(57)Abstract:

PURPOSE: To provide the speaker cable of reproducing an sound with excellent sound quality and contained in a comparatively smaller space when the speaker is mounted to a television receiver.

CONSTITUTION: In television receiver use speakers 10L, 10R in which a speaker unit is arranged in a case removable from a television receiver main body 1, tweeter units 11L, 12L of 11R, 12R reproducing a comparatively high frequency sound are arranged on each of different two faces 10a, 10b of the case and woofer units 13L, 13R reproducing a sound with a comparatively low frequency are arranged on the face 10a in the two faces on which the tweeter units are arranged.



## LEGAL STATUS

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] this invention relates to the loudspeaker for television receivers.

[0002]

[Description of the Prior Art] Conventionally, that [ its ] by which the loudspeaker was included in one is common, for example, when viewing and listening to television broadcasting by the television receiver, it is common [ the television receiver ] to reproduce voice, and to view and listen from the built-in loudspeaker. In this case, since the comparatively small loudspeaker unit is built in the television receiver, generally audio reproduction is performed by appropriate tone quality.

[0003] on the other hand, the time of viewing and listening to the image program reproduced from television broadcasting, videotape, etc. in recent years -- high -- it is performed that it is requested that tone quality voice should be reproduced and it attaches a comparatively large-sized loudspeaker in a television receiver

[0004]

[Problem(s) to be Solved by the Invention] However, if a large-sized loudspeaker is simply attached in a television receiver, a television receiver will be enlarged so much and latus area will be needed as an installation space of a television receiver.

[0005] On the other hand, although combining the large-sized loudspeaker equipment of another object with a television receiver is also considered when a margin is in an installation space comparatively, in such a case, the loudspeaker built in the television receiver will become useless.

[0006] While the purpose of this invention could reproduce the voice of good tone quality, when it attaches in a television receiver, it is to offer the loudspeaker settled comparatively small.

[0007]

[Means for Solving the Problem] this invention is set to the loudspeakers 10L and 10R for television receivers which come to arrange a loudspeaker unit to the case which consisted of television-receiver main parts 1 free [ attachment and detachment ], as shown in drawing 1 . The loudspeaker units 11L and 12L for loud sounds which perform reproduction of comparatively high \*\*\*\* [ each / of 10a and 10b ] the 2nd page from which the case differed, or 11R and 12R are arranged. The loudspeaker units 13L and 13R for low-pitched sound which reproduce low-pass sound comparatively to one field 10a of the 2nd page by which the loudspeaker unit for loud sounds has been arranged are arranged.

[0008] Moreover, it has the almost same frequency characteristic for two loudspeaker units 11L and 12L for loud sounds allotted to each of 10a and 10b the 2nd page in this case, or 11R and 12R.

[0009] Moreover, are with the loudspeaker units 13L and 13R for low-pitched sound, and a case, a phase inversion type loudspeaker is made to form in this case, and required port 14L. 14R is arranged to field 10b of another side of the 2nd page by the this phase inversion type loudspeaker.

[0010]

[Function] Since the loudspeaker unit for loud sounds is constituted comparatively small, the field of another side where only the loudspeaker unit for loud sounds was allotted can narrow breadth, can turn the field of narrow another side of this breadth to a transverse plane, and can stop narrowly the width of face to which a loudspeaker projects from the side of a television receiver by arranging and arranging to a television receiver. Moreover, while was allotted with the loudspeaker unit for loud sounds, and the loudspeaker unit for low-pitched sound can obtain the feeling of a stereo doubled with the image because a field is in the state which turned the field of one of these to the transverse plane, remove it from a television receiver and it arranges in a favorite place, since the loudspeaker unit of a whole tone region is allotted.

[0011]

[Example] Hereafter, one example of this invention is explained with reference to an accompanying drawing.

[0012] Drawing 1 is the perspective diagram showing the state where the loudspeaker equipment of this example was attached in the television receiver, one in drawing shows a television-receiver main part, this television receiver 1 has the image display section 2 which becomes a front face from a cathode-ray tube, and it is made to be attached in the loudspeaker equipments 10L and 10R of another object at the side on either side. In this case, the loudspeaker equipments 10L and 10R on either side are fixed to the sides 3L and 3R of right and left of a television receiver 1 by making this hook 4 insert in the hole 15 which provides the hook 4 in the sides 3L and 3R of right and left of a television receiver 1 as the loudspeaker is not made to build in the television-receiver main part 1 side and it is shown in drawing 2 , and was prepared in the rear-face side of each loudspeaker equipments 10L and 10R. Moreover, as shown in drawing 2 , there is a terminal area 16 in the rear-face side of each loudspeaker

equipments 10L and 10R, and this terminal area 16 is connected with the loudspeaker end-connection child (not shown) of a television receiver 1 in loudspeaker code 7. In addition, the television receiver 1 is made to have laid on the television base 6 in the example of drawing 1.

[0013] In this example and as loudspeaker equipments 10L and 10R on either side When it consists of cases of a core box with comparatively thin thickness and is made to fix to the sides 3L and 3R of right and left of a television receiver 1 (state of drawing 1) TUITA 11L and 11R which is the loudspeaker units for loud sounds which perform reproduction of comparatively high \*\*\*\* in the upper part of field (it considers as 1st field below) 10a which constitutes the side on either side is arranged. Moreover, when it is made to fix to the sides 3L and 3R of right and left of a television receiver 1 (state of drawing 1), TUITA 12L and 12R which is the loudspeaker units for loud sounds which perform reproduction of comparatively high \*\*\*\* in the lower part of field (it considers as 2nd field below) 10b which is on a front-face side is arranged. TUITA 11L and 11R of this 1st field 10a and TUITA 12L and 12R of 2nd field 10b are made into the loudspeaker unit of the same frequency characteristic in the same size, for example, have reproduced the high region 300Hz or more. Therefore, it is made to be simultaneously reproduced from TUITA 11L and 11R of 1st field 10a in the sound of the same frequency characteristic from TUITA 12L and 12R of 2nd field 10b.

[0014] Moreover, Ufa 13L and 13R which is the loudspeaker units for low-pitched sound which reproduce low-pass sound comparatively in the lower part of 1st field 10a is arranged. These Ufa 13L and 13R consists of loudspeaker units with a comparatively big diameter, for example, has reproduced low-pass [ 300Hz or less ]. In this case, it is made for the playback system of the low-pass sound by these Ufa 13L and 13R to be a phase inversion type (bus reflex REKKUSU type) loudspeaker. That is, the bores (port) 14L and 14R which emit the air in a cabinet outside are formed in the upper part of 1st field 10a of each loudspeaker equipments 10L and 10R, and as shown in drawing 3, the duct 17 of predetermined length is provided in it following these ports 14L and 14R. The phase of the sound which came out of the tooth-back side of Ufa 13L and 13R is reversed by installation of this duct 17, and it emanates from these ports 14L and 14R, and functions as a phase inversion type whose regeneration efficiency of low-pass sound improves.

[0015] And the protection member called a saran network etc. is arranged to 1st field 10a of the loudspeaker equipments 10L and 10R of these right and left, and the 2nd field 10b. Therefore, the loudspeaker unit and duct which are shown in drawing 3 etc. are hidden by the protection member, and it is made to have not looked direct from the outside in fact.

[0016] In addition, the path of Ports 14L and 14R and the path of toe ITA 12L and 12R are made almost equal, and it is made to have been in the state where two bores (for duct anchoring a hole and for TUITA anchoring hole) of the diameter of the same opened to 1st field 10a of a cabinet, by this example in the state of attaching neither a duct 17 nor toe ITA 12L and 12R in the case which constitutes a loudspeaker cabinet. Thus, it becomes possible to make the cabinet itself which constitutes loudspeaker equipment from a certain thing common-use-ize with the loudspeaker equipments 10L and 10R on either side.

[0017] Next, the arrangement state of the loudspeaker equipments 10L and 10R of this example is explained.

[0018] First, it can consider making it fix to the side of right and left of a television receiver 1 directly as standard arrangement, as shown in drawing 1. In this case, the image display section 2 of a television receiver 1 and 2nd field 10b of the loudspeaker equipments 10L and 10R on either side will be located in a line with a single tier, and the image display section 2 and the televiewer who countered will be within limits which high \*\*\*\* reproduced from TUITA 12L and 12R attached in this 2nd field 10b reaches. Therefore, the voice which has presence because the voice reproduced from the loudspeaker equipments 10L and 10R on either side will reach a televiewer good, for example, performs stereo reproduction is reproduced. In addition, since the low-pass sound reproduced from Ufa 13L and 13R on either side does not have directivity comparatively, even if Ufa 13L and 13R on either side is allotted to the side, the image display section 2 and the televiewer who countered will hear low-pass sound good, and will hear the reproduction sound of all bands with sufficient balance.

[0019] In the arrangement shown in this drawing 1, since 2nd field 10b with narrow breadth was turned to the transverse plane, the breadth of the whole television receiver containing a loudspeaker can be stopped short, and a television receiver can be installed in a narrow space. And since the size of Ufa 13L and 13R which can be installed in each loudspeaker equipments 10L and 10R is not influenced by the width of face (namely, breadth of 2nd field 10b) of the transverse plane of the loudspeaker equipments 10L and 10R, Ufa 13L and 13R where a path is comparatively big can be installed, and reproduction of powerful low-pass sound is performed.

[0020] Next, the example of arrangement at the time of removing the loudspeaker equipments 10L and 10R of this example from the television-receiver main part 1 is explained. In this case, it is possible to arrange, as shown, for example in drawing 4. That is, after removing each loudspeaker equipments 10L and 10R from the television-receiver main part 1, the loudspeaker code 7 which connects the loudspeaker end-connection child of the television-receiver main part 1 and the terminal area 16 of each loudspeaker equipments 10L and 10R is connected to right-and-left reverse (a loudspeaker code is omitted in drawing 4). That is, the sound signal of a right channel is made to supply to loudspeaker equipment 10L for left, and the sound signal of a left channel is made to supply to loudspeaker equipment 10R for right.

[0021] And while making loudspeaker equipment 10L for left fix to the wall surface of the method of the right rear of a television receiver 1, loudspeaker equipment 10L for right is made to fix to the wall surface of the method of the left rear of a television receiver 1. At this time, it arranges so that 1st field 10a of each loudspeaker equipment 10L and 10R may become a transverse plane. Moreover, a television receiver 1 is made to lay in television base 6' of suitable size. In addition, the direction of right and left here is a direction seen from the image display section 2 of a television receiver 1, and those who countered.

[0022] Thus, by arranging, 1st field 10a becomes a transverse plane, and the image display section 2 and the televiewer who countered will be within limits which high \*\*\*\* reproduced from TUITA 11L and 11R attached in 1st field 10a reaches.

Therefore, the voice which has presence because the voice reproduced from the loudspeaker equipments 10L and 10R on either

1bot

1300kHz

1stereo

side also in this case will reach a televiewer with all sufficient band balance, for example, performs stereo reproduction is reproduced. In this example, the loudspeaker equipments 10L and 10R on either side by moreover, the thing allotted to right-and-left reverse 2nd field 10b of each loudspeaker equipment 10L and 10R will turn to the outside distant from the television receiver 1. The voice reproduced from TUITA 12L and 12R allotted to 2nd field 10b of each loudspeaker equipment 10L and 10R comes to spread right and left, and large stereo reproduction of an audio feeling of a breadth can be performed.

[0023] In addition, when carrying out such arrangement, you may make it make it lay on the predetermined loudspeaker bases 8L and 8R, as each loudspeaker equipments 10L and 10R are shown in drawing 5, without making it fix to a wall surface.

[0024] Moreover, as shown in drawing 6, you may make it arrange the loudspeaker equipments 10L and 10R on either side in the position (namely, loudspeaker equipment 10R which is an object for right loudspeaker equipment 10L of the method of the right rear of a television receiver 1, and left business method of the left rear of a television receiver 1) of a regular direction, when making each loudspeaker equipments 10L and 10R fix to a wall surface. In this case, the connection in a loudspeaker code is also connected in the regular direction. By doing in this way, 2nd field 10b of each loudspeaker equipment 10L and 10R comes to turn to a television-receiver 1 side, and the voice reproduced from toe ITA 12L and 12R allotted to 2nd field 10b goes to a television-receiver 1 side. Therefore, the reproduction sound of comparatively a high region comes to gather for the screen side of a television receiver 1, the image of high \*\*\*\* gathers for a pin center, large side, and reproduction which the image normal position concentrates on a screen is performed. Made it better to reproduce with such a gestalt depending on the image program to which it views and listens.

[0025] Thus, reproduction from which a favorite feeling of a stereo is obtained according to an arrangement state by combining the loudspeaker equipments 10L and 10R of this example with a television receiver 1 when it removes from a television receiver 1 and has arranged, while voice reproduction good in a small space to an attachment beam case was directly performed to the television receiver 1 is performed, and even when it is any, good voice reproduction can be performed.

[0026] In addition, about the structure of attaching each loudspeaker equipments 10L and 10R in a television receiver 1 free attachment and detachment], it is until the above-mentioned example showed an example, and of course, other various connection structures are applicable. Moreover, it is good also as closed mold which does not prepare a duct in the above-mentioned example although it was made for the playback system of the low-pass sound by Ufa 13L and 13R to serve as a phase inversion type. However, generally reproduction of efficient low-pass sound is possible in a cabinet with the smaller phase inversion type.

[0027] Moreover, although considered as the loudspeaker equipment of 2 way methods which consist of above-mentioned examples in TUITA and Ufa, it is good also as a loudspeaker of three ways or the band number of partitions beyond it.

[0028]

[Effect of the Invention] According to this invention, the field where only the loudspeaker unit for loud sounds was allotted By being able to narrow breadth, turning the narrow field of this breadth to a transverse plane, and arranging and arranging to a television receiver While being able to stop narrowly the width of face to which a loudspeaker projects from the side of a television receiver, the field where the loudspeaker unit for low-pitched sound was allotted with the loudspeaker unit for loud sounds Since the loudspeaker unit of a whole tone region is allotted, the feeling of a stereo doubled with the image is obtained by removing from a television receiver and arranging in a favorite place, where this field is turned to a transverse plane.

[0029] In this case, when the field in which which loudspeaker unit for loud sounds was attached is turned to a transverse plane by having made two loudspeaker units for loud sounds into the almost same frequency characteristic, good reproduction of the almost same frequency characteristic is performed.

[0030] Moreover, the space as for which this field was vacant is effectively utilized by having arranged the port required of a phase inversion type loudspeaker to the field where only the loudspeaker unit for loud sounds was allotted.

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**CLAIMS**

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[Claim(s)]

[Claim 1] The loudspeaker for television receivers which has arranged the loudspeaker unit for low-pitched sound which reproduces low-pass sound comparatively to one field of the 2nd page which arranges the loudspeaker unit for loud sounds which performs reproduction of comparatively high \*\*\*\* to each of the 2nd page from which the above-mentioned case differed in the loudspeaker for television receivers which comes to arrange a loudspeaker unit to the case which consisted of television-receiver main parts free [ attachment and detachment ], and by which the above-mentioned loudspeaker unit for loud sounds has been arranged.

[Claim 2] The loudspeaker for television receivers according to claim 1 which shall have the almost same frequency characteristic as two loudspeaker units for loud sounds allotted to each of the 2nd above-mentioned page.

[Claim 3] The loudspeaker for television receivers according to claim 1 which was made to form a phase inversion type loudspeaker and has arranged the required port to the field of another side of the 2nd above-mentioned page by the this phase inversion type loudspeaker by the above-mentioned loudspeaker unit for low-pitched sound, and the above-mentioned case.

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**DESCRIPTION OF DRAWINGS**

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[Brief Description of the Drawings]

[Drawing 1] It is the perspective diagram showing one example of this invention.

[Drawing 2] It is the perspective diagram showing the state where the loudspeaker of one example was removed.

[Drawing 3] It is the perspective diagram expanding and showing the loudspeaker of one example.

[Drawing 4] It is the plan showing the example of arrangement of the loudspeaker of one example.

[Drawing 5] It is the plan showing the example of arrangement of the loudspeaker of one example.

[Drawing 6] It is the plan showing the example of arrangement of the loudspeaker of one example.

[Description of Notations]

1 Television Receiver

2 Image Display Section (Cathode-ray Tube)

10L, 10R Loudspeaker equipment

10a The 1st field

10b The 2nd field

11L, 11R, 12L, 12R TUITA

13L, 13R Ufa

14L, 14R Port

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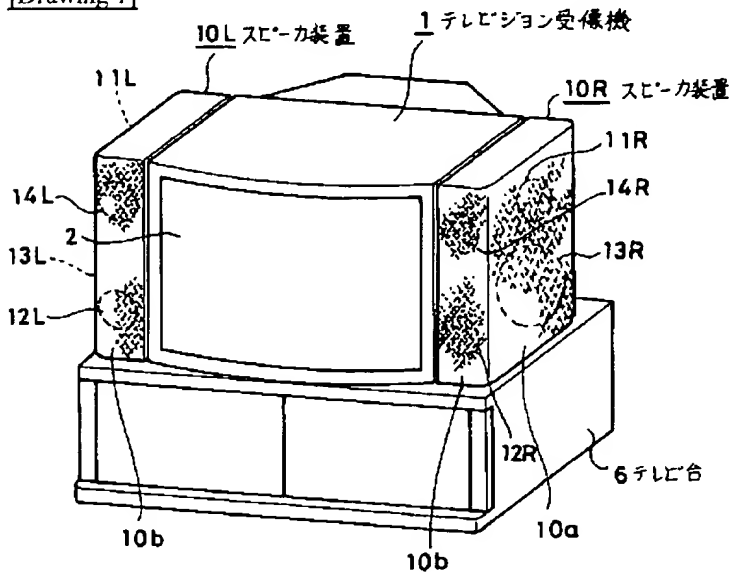
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DRAWINGS

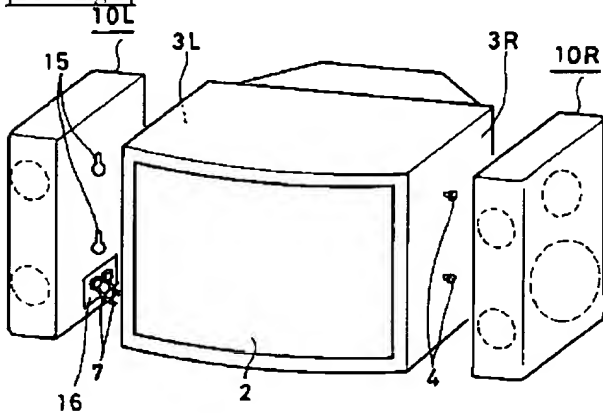
[Drawing 1]



－実施例の構成

10L / 10 R:  
11L / 12L: Low power  
13L / 13 R: low pitched  
14L / 14 R

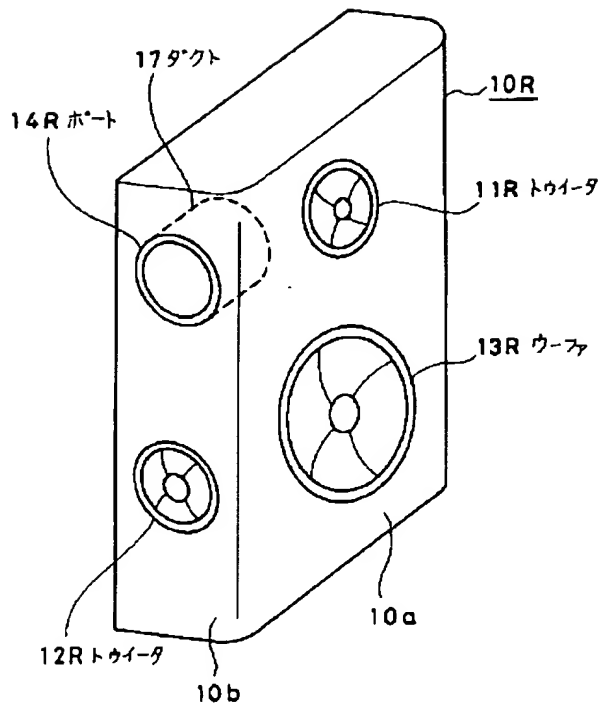
[Drawing 2]



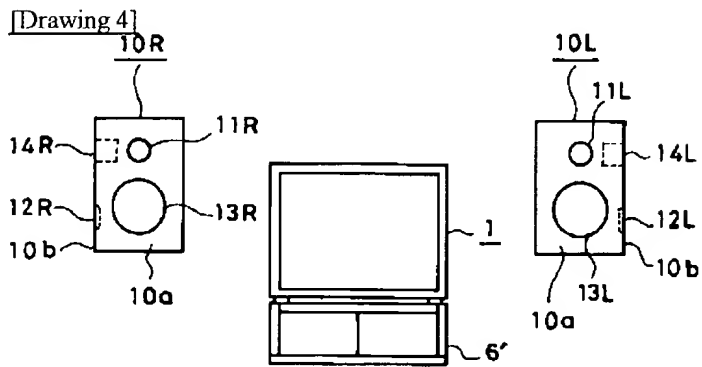
スピーカー装置を取り外した状態

[Drawing 3]

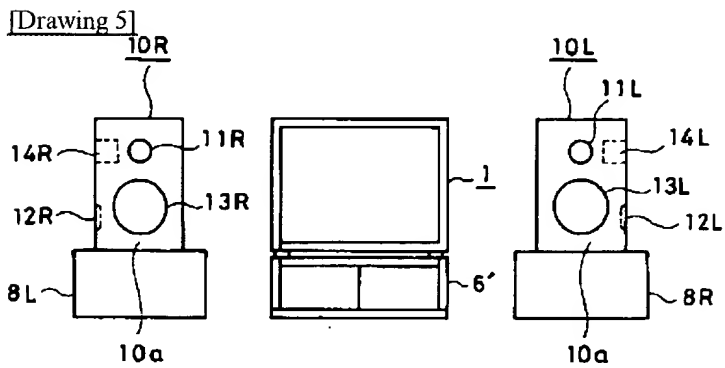
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スピーカ装置の構成



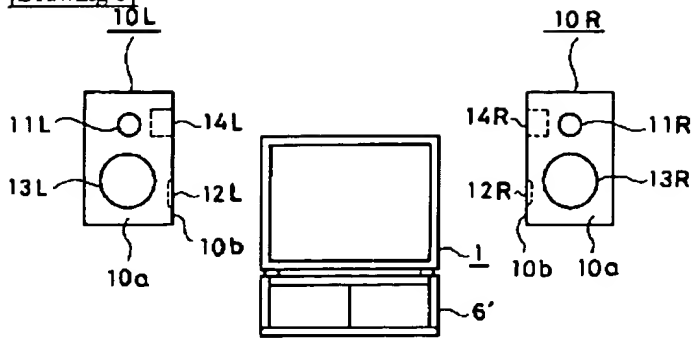
配置例



配置例



[Drawing 6]



配置例

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**TECHNICAL FIELD**

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[Industrial Application] this invention relates to the loudspeaker for television receivers.

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**PRIOR ART**

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**EFFECT OF THE INVENTION**

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[Effect of the Invention] The field where only the loudspeaker unit for loud sounds was allotted according to this invention, By being able to narrow breadth, turning the narrow field of this breadth to a transverse plane, and arranging and arranging to a television receiver While being able to stop narrowly the width of face to which a loudspeaker projects from the side of a television receiver, the field where the loudspeaker unit for low-pitched sound was allotted with the loudspeaker unit for loud sounds Since the loudspeaker unit of a whole tone region is allotted, the feeling of a stereo doubled with the image is obtained by removing from a television receiver and arranging in a favorite place, where this field is turned to a transverse plane.

[0029] In this case, when the field in which which loudspeaker unit for loud sounds was attached is turned to a transverse plane by having made two loudspeaker units for loud sounds into the almost same frequency characteristic, good reproduction of the almost same frequency characteristic is performed.

[0030] Moreover, the space as for which this field was vacant is effectively utilized by having arranged the port required of a phase inversion type loudspeaker to the field where only the loudspeaker unit for loud sounds was allotted.

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**TECHNICAL PROBLEM**

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[Problem(s) to be Solved by the Invention] However, if a large-sized loudspeaker is simply attached in a television receiver, a television receiver will be enlarged so much and large area will be needed as an installation space of a television receiver.

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**MEANS**

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[Means for Solving the Problem] this invention is set to the loudspeakers 10L and 10R for television receivers which come to arrange a loudspeaker unit to the case which consisted of television-receiver main parts 1 free [ attachment and detachment ], as shown in drawing 1 . The loudspeaker units 11L and 12L for loud sounds which perform reproduction of comparatively high \*\*\*\* [ each / of 10a and 10b ] the 2nd page from which the case differed, or 11R and 12R are arranged. The loudspeaker units 13L and 13R for low-pitched sound which reproduce low-pass sound comparatively to one field 10a of the 2nd page by which the loudspeaker unit for loud sounds has been arranged are arranged.

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**OPERATION**

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[Function] Since the loudspeaker unit for loud sounds is constituted comparatively small, the field of another side where only the loudspeaker unit for loud sounds was allotted can narrow breadth, can turn the field of narrow another side of this breadth to a transverse plane, and can stop narrowly the width of face to which a loudspeaker projects from the side of a television receiver by arranging and arranging to a television receiver. Moreover, while was allotted with the loudspeaker unit for loud sounds, and the loudspeaker unit for low-pitched sound can obtain the feeling of a stereo doubled with the image because a field is in the state which turned the field of one of these to the transverse plane, remove it from a television receiver and it arranges in a favorite place, since the loudspeaker unit of a whole tone region is allotted.

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